

AMENDMENTS TO CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-25 (cancelled)

26. (Currently Amended) A starter for an electric power generator that comprises a rotor and mechanical energy transmitting means, which is comprised of a wheel train that includes a plurality of gears, for transmitting mechanical energy to and from the rotor, thereby converting one of mechanical energy and electrical energy into the other, the starter comprising:

a startup member having an engaging portion capable of mechanically engaging with an engaged portion of a rotation target gear of the mechanical energy transmitting means, wherein the engaging portion is moved in response to operation of an external operating member to temporarily apply a rotating force to the rotation target gear, while the engaging portion is in engagement with the engaged portion, whereby the rotor is rotated at an increased speed upon start up of the electric power generator, wherein the rotating force temporarily applied to the rotation target gear in response to operation of the external operating member does not vary substantially regardless of the force applied to the external operating member.

27. (Currently Amended) A starter for an electric power generator that comprises a rotor and mechanical energy transmitting means, which is comprised of a wheel train that includes a plurality of gears, for transmitting mechanical energy to and from the rotor, thereby converting one of mechanical energy and electrical energy into the other, the starter comprising:

a startup member having an engaging portion capable of engaging with a rotation target gear of the mechanical energy transmitting means, wherein the engaging portion is moved substantially in a tangential direction relative to a peripheral portion of the rotation target gear in response to operation of an external operating member to temporarily apply a rotating force to the rotation target gear, whereby the rotor is rotated at an increased speed upon start up of

the electric power generator, wherein the rotating force temporarily applied to the rotation target gear in response to operation of the external operating member does not vary substantially regardless of the force applied to the external operating member.

28. (Currently Amended) A starter for an electric power generator that comprises a rotor and mechanical energy transmitting means, which is comprised of a wheel train that includes a plurality of gears, for transmitting mechanical energy to and from the rotor, thereby converting one of mechanical energy and electrical energy into the other, the starter comprising:

a startup member for temporarily applying, in response to operation of an external operating member, a rotating force to a pinion of a gear of the mechanical energy transmitting means, the gear being directly coupled to the rotor, whereby the rotor is rotated at an increased speed upon start up of the electric power generator, wherein the rotating force temporarily applied to the pinion in response to operation of the external operating member does not vary substantially regardless of the force applied to the external operating member.

29. (Currently Amended) A starter for an electric power generator that comprises a rotor and mechanical energy transmitting means for transmitting mechanical energy to and from the rotor, thereby converting one of mechanical energy and electrical energy into the other, the starter comprising:

a startup member for temporarily applying, in response to operation of an external operating member, a rotating force to one of the rotor of the electric power generator, a pinion of a gear of the mechanical energy transmitting means, and or a rotation target gear of the mechanical energy transmitting means, whereby the rotor is rotated at an increased speed upon start up of the electric power generator, wherein the rotating force temporarily applied to the rotor, the pinion or the rotation target gear in response to operation of the external operating member does not vary substantially regardless of the force applied to the external operating member.

30. (Previously Presented) The starter for an electric power generator according to claim 29, wherein the rotation target gear, the pinion or the rotor includes an

engaged portion, and the startup member includes an engaging portion capable of mechanically engaging with the engaged portion of the rotation target gear, the pinion or the rotor.

31. (Previously Presented) The starter for an electric power generator according to claim 29, wherein the startup member is magnetically engageable with the rotation target gear, the pinion or the rotor.

32. (Previously Presented) The starter for an electric power generator according to claim 30, wherein the engaging portion of the startup member engages with the engaged portion of the rotation target gear, the pinion or the rotor in response to a first operation of the external operating member, and is moved to temporarily apply a rotating force to the rotation target gear, the pinion or the rotor in response to a second operation of the external operating member.

33. (Previously Presented) The starter for an electric power generator according to claim 32, wherein the engaging portion of the startup member is moved substantially in the tangential direction of the rotation target gear, the pinion or the rotor in response to the second operation of the external operating member.

34. (Previously Presented) The starter for an electric power generator according to claim 30, wherein the startup member comprises a startup spring having an engaging portion capable of engaging with the engaged portion of the rotation target gear, the pinion or the rotor, and a startup-spring operating member for biasing the engaging portion of the startup spring into engagement with the engaged portion of the rotation target gear, the pinion or the rotor in response to a first operation of the external operating member and for releasing the startup spring from a biased state to return the startup spring to an original position in response to a second operation of the external operating member.

35. (Previously Presented) The starter for an electric power generator according to claim 34, wherein the startup spring is a leaf spring, and the engaging portion of the startup spring is moved by the startup-spring operating member substantially in a tangential direction relative to a peripheral portion of the rotation target gear, the pinion or the rotor.

36. (Previously Presented) The starter for an electric power generator according to claim 34, wherein an opposite end portion of the startup spring is fixed to a pin that is rotatably attached to a base of the electric power generator.

37. (Previously Presented) The starter for an electric power generator according to claim 34, wherein the startup-spring operating member comprises a latch portion capable of engaging with the rotation target gear, the pinion or the rotor to stop rotation thereof, and a startup-spring biasing portion for biasing the startup spring by a predetermined amount, while the latch portion is in engagement with the rotation target gear, the pinion or the rotor, thereby bringing the engaging portion of the startup spring into engagement with the engaged portion of the rotation target gear, the pinion or the rotor.

38. (Previously Presented) The starter for an electric power generator according to claim 34, wherein the external operating member is a crown, and wherein the startup-spring operating member is comprised of a lever for biasing the startup spring to engage with the engaged portion of the rotation target gear, the pinion or the rotor when the crown is pulled out, and for releasing the startup spring from the biased state to return the startup spring to the original position when the crown is pushed in, thereby applying a mechanical rotating force to the rotation target gear, the pinion or the rotor.

39. (Previously Presented) The starter for an electric power generator according to claim 26, wherein the electric power generator includes a yoke and a coil.

40. (Previously Presented) The starter for an electric power generator according to claim 39, wherein the electric power generator includes a core portion around which the coil is wound.

41. (Previously Presented) The starter for an electric power generator according to claim 30, wherein the rotating force is applied to the rotor and the engaged portion of the rotor is formed along a peripheral portion thereof.

42. (Previously Presented) The starter for an electric power generator according to claim 41, wherein the rotor of the electric power generator includes an inertia

plate, and the engaged portion of the rotor is formed along a peripheral portion of the inertia plate.

43. (Previously Presented) The starter for an electric power generator according to claim 42, wherein the inertia plate is attached to a rotating shaft of the rotor through a slip mechanism.

44. (Previously Presented) The starter for an electric power generator according to claim 30, wherein the rotating force is applied to the rotor and the startup member restricts the rotor to a position offset from a statically stable position thereof when the startup member is engaged with the engaged portion of the rotor.

45. (Previously Presented) The starter for an electric power generator according to claim 26, wherein the startup member for rotating the rotor rotates the rotor forward in a rotating direction thereof.

46. (Currently Amended) A timepiece, comprising:

a mechanical energy source;

an electric power generator driven by the mechanical energy source for outputting electrical energy;

a rotation controller operated with the electrical energy generated by the electric power generator;

hands driven under control of the rotation controller; and

a starter for the electric power generator, the starter comprising:

a startup member having an engaging portion capable of mechanically engaging with an engaged portion of a rotation target gear of the mechanical energy source, wherein the engaging portion is moved in response to operation of an external operating member to temporarily apply a rotating force to the rotation target gear, while the engaging portion is in engagement with the engaged portion, whereby the rotor is rotated at an increased speed upon start up of the electric power generator, wherein the rotating force temporarily applied to the rotation target gear in response to operation of the external operating

member does not vary substantially regardless of the force applied to the external operating member.

47. (Currently Amended) A timepiece, comprising:

a mechanical energy source;

a transmission wheel train for transmitting mechanical energy from the mechanical energy source;

hands driven by the transmission wheel train for indicating the time of day;

an electric power generator including a rotor rotated through the transmission wheel train for outputting electrical energy;

an electricity accumulator for accumulating an electromotive force generated by the electric power generator; and

a rotation controller operated by the electricity accumulator, the rotation controller including a reference-signal output circuit for outputting a reference signal, and a comparison-and-control signal output circuit for detecting a cycle of the rotor of the electric power generator, comparing the detected cycle with the reference signal, and outputting a comparison and control signal; and

a starter for the electric power generator, wherein the starter provides temporarily applies a rotating force that acts on the transmission wheel train or the rotor in response to operation of an external operating member, wherein the rotating force temporarily applied to the transmission wheel train or the rotor in response to operation of the external operating member does not vary substantially regardless of the force applied to the external operating member.

48. (Previously Presented) The timepiece according to claim 46, further comprising:

an electricity accumulator, selectively connectable to the rotation controller through a mechanical switch, that is able to accumulate the electrical energy outputted from the electric power generator;

wherein the mechanical switch is turned off in response to a first operation of the external operating member to disconnect the electricity accumulator from the rotation controller, and is turned on in response to a

second operation of the external operating member to supply the electrical energy from the electricity accumulator to the rotation controller.

49. (Previously Presented) The timepiece according to claim 46, wherein the rotating force applied to the rotation target gear by the startup member is set to such a magnitude as causing the rotor of the electric power generator to be started up at a reference speed.

50. (Currently Amended) A timepiece, comprising:

an electrical energy source;

an electric power generator driven by the electrical energy source for outputting mechanical energy, the electric power generator comprising a rotor and mechanical energy transmitting means;

a rotation controller operated with electrical energy from the electrical energy source;

hands driven under control of the rotation controller; and

a starter for the electric power generator, the starter comprising a startup member having an engaging portion capable of mechanically engaging with an engaged portion of a rotation target gear of the mechanical energy transmitting means, wherein the engaging portion is moved in response to operation of an external operating member to temporarily apply a rotating force to the rotation target gear, while the engaging portion is in engagement with the engaged portion, whereby the rotor is rotated at an increased speed upon start up of the electric power generator, wherein the rotating force temporarily applied to the rotation target gear in response to operation of the external operating member does not vary substantially regardless of the force applied to the external operating member.

51. (New) A starter for an electric power generator that comprises a rotor and mechanical energy transmitting means, which is comprised of a wheel train that includes a plurality of gears, for transmitting mechanical energy to and from the rotor, thereby converting one of mechanical energy and electrical energy into the other, the starter comprising:

a startup spring having an engaging portion capable of mechanically engaging with an engaged portion of a rotation target gear of the mechanical energy transmitting means, and

a startup-spring operating member comprising a latch portion capable of engaging with the rotation target gear to stop rotation thereof and a startup-spring biasing portion for biasing the startup spring by a predetermined amount, wherein the startup-spring operating member is adapted to

bias the startup spring so as to engage the engaging portion thereof with the engaged portion of the rotation target gear and to cause the latch portion to engage with the rotation target gear, in response to a first operation of the external operating member, to temporarily apply a rotating force to the rotation target gear, while the engaging portion is in engagement with the engaged portion and the latch portion is in engagement with the rotation target gear, whereby the rotor is rotated at an increased speed upon startup of the electric power generator, and

release the startup spring from a biased state to return the startup spring to an original position in response to a second operation of the external operating member.

52. (New) The starter for an electric power generator according to claim 51, wherein, in biasing the startup spring, the engaging portion thereof is moved substantially in a tangential direction relative to a peripheral portion of the rotation target gear.

53. (New) A starter for an electric power generator that comprises a rotor and mechanical energy transmitting means, which is comprised of a wheel train that includes a plurality of gears, for transmitting mechanical energy to and from the rotor, thereby converting one of mechanical energy and electrical energy into the other, the starter comprising:

a startup spring having an engaging portion capable of mechanically engaging with a pinion of a gear of the mechanical energy transmitting means, the gear being directly coupled to the rotor, and

a startup-spring operating member comprising a latch portion capable of engaging with the pinion to stop rotation thereof and a startup-spring biasing portion for biasing the startup spring by a predetermined amount, wherein the startup-spring operating member is adapted to

bias the startup spring so as to engage the engaging portion thereof with the engaged portion of the pinion and to cause the latch portion to engage with the pinion, in response to a first operation of the external operating member, to temporarily apply a rotating force to the pinion, while the engaging portion is in engagement with the engaged portion and the latch portion is in engagement with the pinion, whereby the rotor is rotated at an increased speed upon startup of the electric power generator, and

release the startup spring from a biased state to return the startup spring to an original position in response to a second operation of the external operating member.

54. (New) A timepiece, comprising:

a mechanical energy source;

a transmission wheel train for transmitting mechanical energy from the mechanical energy source;

hands driven by the transmission wheel train for indicating the time of day;

an electric power generator including a rotor rotated through the transmission wheel train for outputting electrical energy;

an electricity accumulator for accumulating an electromotive force generated by the electric power generator; and

a rotation controller operated by the electricity accumulator, the rotation controller including a reference-signal output circuit for outputting a reference signal, and a comparison-and-control signal output circuit for detecting a cycle of the rotor of the electric power generator, comparing the detected cycle with the reference signal, and outputting a comparison and control signal; and

a starter comprising

a startup spring having an engaging portion capable of mechanically engaging with an engaged portion of a rotation target gear of the transmission wheel train, and

a startup-spring operating member comprising a latch portion capable of engaging with the rotation target gear to stop rotation thereof and a startup-spring biasing portion for biasing the startup spring by a predetermined amount, wherein the startup-spring operating member is adapted to

bias the startup spring so as to engage the engaging portion thereof with the engaged portion of the rotation target gear and to cause the latch portion to engage with the rotation target gear, in response to a first operation of the external operating member, to temporarily apply a rotating force to the rotation target gear, while the engaging portion is in engagement with the engaged portion and the latch portion is in engagement with the rotation target gear, whereby the rotor is rotated at an increased speed upon startup of the electric power generator, and

release the startup spring from a biased state to return the startup spring to an original position in response to a second operation of the external operating member.

55. (New) The timepiece according to claim 46, wherein, in biasing the startup spring, the engaging portion thereof is moved substantially in a tangential direction relative to a peripheral portion of the rotation target gear.

56. (New) A timepiece, comprising:

a mechanical energy source;

a transmission wheel train for transmitting mechanical energy from the mechanical energy source;

hands driven by the transmission wheel train for indicating the time of day;

an electric power generator including a rotor rotated through the transmission wheel train for outputting electrical energy;

an electricity accumulator for accumulating an electromotive force generated by the electric power generator; and

a rotation controller operated by the electricity accumulator, the rotation controller including a reference-signal output circuit for outputting a reference signal, and a comparison-and-control signal output circuit for detecting a cycle of the rotor of the electric power generator, comparing the detected cycle with the reference signal, and outputting a comparison and control signal; and

a starter comprising

a startup spring having an engaging portion capable of mechanically engaging with a pinion of a gear of the transmission wheel train, the gear being directly coupled to the rotor, and

a startup-spring operating member comprising a latch portion capable of engaging with the pinion to stop rotation thereof and a startup-spring biasing portion for biasing the startup spring by a predetermined amount, wherein the startup-spring operating member is adapted to

bias the startup spring so as to engage the engaging portion thereof with the engaged portion of the pinion and to cause the latch portion to engage with the pinion, in response to a first operation of the external operating member, to temporarily apply a rotating force to the pinion, while the engaging portion is in engagement with the engaged portion and the latch portion is in engagement with the pinion, whereby the rotor is rotated at an increased speed upon startup of the electric power generator, and

release the startup spring from a biased state to return the startup spring to an original position in response to a second operation of the external operating member.